

ADJUSTABLE BINDINGS FOR SNOWSHOES

DESCRIPTION

[Para 1] This application claims the benefit of U.S. provisional application serial number 60481314, filed on August 29, 2003.

[Para 2] Background of the Invention

[Para 3] Snowshoes have been used for centuries as an effective and practical method for traversing snow fields. The evolution of snowshoes have gone from the early tennis racquet design having a wooden elliptical frame and sinew interlaced straps forming a webbing to modern high strength aluminum alloy frames and polyurethane coated deckings. Snowshoes have evolved from uses derived from necessity into recreational use as well. These uses include back country expeditions, sport uses such as racing, recreational hiking and even emergency rescue uses. The image of a traditional snowshoer as a rugged, back country expeditioner has changed to include not only sport enthusiasts but also recreational users including children.

[Para 4] The basic premise with snowshoes is the creation of a flotation effect created by the dispersion of the wearers weight over a large area relative to the feet of the wearer. This flotation effect allows the wearer to walk over the snow layers without falling through. The shape of the snowshoes include the basic tennis racquet design, substantially rectangular or oval designs and asymmetrical elongated shapes. These snowshoes typically use a structural frame, formed of high-strength aluminum alloys, a polyurethane decking attached onto the frame, a binding secured onto the frame or the decking and talons on the bottom to improve traction. These snowshoes are designed for traversing the snow fields.

[Para 5] Bindings for snowshoes have typically included a system of attaching the front of the boot or shoe and a separate attachment mechanism for attaching the rear of the boot or shoe. These separate attachments are

necessary to accommodate different sizes and styles of boots and shoes and to securely fasten these boots or shoes to the snowshoes. The adjustment and securement of these bindings are cumbersome, particularly in bending over and working with gloves in cold temperatures.

[Para 6] Another feature of existing snowshoes is the opaque nature of the decking materials. Existing snowshoes typically use decking materials formed from Hypalon, nylon, vinyl, canvas, polyurethane or other opaque materials. Thus the user sees this material as they are snowshoeing on the white snow surfaces.

[Para 7] These and other problems exist in the use of existing snowshoes. Thus, a need exists for a binding that can be easily fastened and that accommodate a wide range of sizes and styles of boots and shoes.

[Para 8] Summary of the Invention

[Para 9] The present invention solves these and other problems by providing a snowshoe that is able to easily accommodate differing sizes of footwear. In a preferred embodiment of the present invention, an adjustable binding is provided that is usable not only on snowshoes, but on other devices such as snowboards, skis and other devices that utilize bindings.

[Para 10] In a preferred embodiment, the present invention provides an adjustable binding that is mounted onto a snowshoe. The adjustable binding includes a sliding rear foot member that enables a user to step into the binding and secure the fastening mechanism. The fastening mechanism will cause the sliding rear foot member to adjust to the proper position for securely engaging the footwear of the user.

[Para 11] The present invention also provides a fore foot member that is pivotable relative to the snowshoe. This enables the user to securely engage on the snow surface regardless of the incline while the snowshoe itself floats on the surface. A crampon-like device may be mounted to the bottom of the fore foot member to assist in the engagement on the snow.

[Para 12] In a preferred embodiment, the fore foot member includes a pivot rod that is mounted through or to the fore foot member. Strap

attachments on either side of the pivot rod secure it and the fore foot member to the snowshoe. This allows the fore foot member to pivot relative to the snowshoe.

[Para 13] Curved resilient support members extend upwards from the fore foot member. These support members engage the footwear of the user and hold it in place.

[Para 14] Straps are mounted to the fore foot member and rear foot member to connect the two members together. The user simply inserts their footwear into the fore foot member and the rear foot member and pull the straps tight through a ratchet or engaging mechanism. The sliding rear foot member is pulled snugly against the heel of the footwear and the footwear is securely fastened in the snowshoe.

[Para 15] Another preferred embodiment of the present invention provides a translucent decking to the snowshoe. This clear decking material provides an experience of walking or free floating on the snow surface to provide a unique experience.

[Para 16] These and other features of the present invention are evident from the ensuing detailed description of embodiments and from the drawings.

[Para 17] Brief Description of the Drawings

[Para 18] Figure 1 is a perspective view of the adjustable binding of a preferred embodiment of the present invention.

[Para 19] Figure 2 is a perspective view of the embodiment of Figure 1 without a boot.

[Para 20] Figure 3 is a perspective view of the platform and heel plate assembly of the embodiment of Figure 1.

[Para 21] Figure 4 is a perspective view of the partially assembled binding of the embodiment of Figure 1.

[Para 22] Detailed Description of Preferred Embodiments

[Para 23] The present invention, in a preferred embodiment, provides an improved snowshoe. A preferred embodiment of the present invention is described below. It is to be expressly understood that this descriptive embodiment is provided for explanatory purposes only, and is not meant to unduly limit the scope of the present invention as set forth in the claims. Other embodiments of the present invention are considered to be within the scope of the claimed inventions, including not only those embodiments that would be within the scope of one skilled in the art, but also as encompassed in technology developed in the future.

[Para 24] A preferred embodiment of the present invention is illustrated in Figures 1 – 4. In the preferred embodiment described herein, the snowshoe 10 includes a frame 12 formed from aluminum, high strength plastic or other structural materials. The snowshoe also includes a decking 14, formed from a high strength material such as Hypalon, nylon, neoprene, polyurethane or other materials. An improved decking material is discussed below in another embodiment of the improved snowshoe. The snowshoe also includes a binding system 20 for attaching the boot or shoe of a user to the snowshoe, as shown in Figure 1.

[Para 25] Binding system 20, as shown in Figures 1 and 2 includes forefoot support 22, rear foot support 24 and strap system 26, all discussed in greater detail below. Crampon 28 is mounted to the front portion of platform 30, as shown in Figure 3 by rivets, screws or other fastening devices. The platform 30 is formed from thin metal plate or other high strength material.

[Para 26] Pivot rod 32 extends across opening 16 in the decking 14. It is secured to frame 12 by durable straps 34 extending through eyelets 36 formed in the ends of the pivot rod 32. This allows the pivot rod 32 to pivot relative to the frame 12 and decking 14. The pivot rod 32 is mounted to the front portion of the platform 30 to allow the front portion of the platform and crampon 28 to pivot during use.

[Para 27] It is to be expressly understood that other types of pivoting mechanisms securing the platform to the frame can be used as well. For

example, and without limiting the invention, a living hinge may be used to fasten the platform to the frame or decking of the snowshoe. Other types of mechanisms may be used as well, or even a non-pivoting mechanism.

[Para 28] The rear portion of the platform 30 forms an elongated tail member 38, as shown in Figure 3. Heel plate 40 is attached over the tail member 38 to slide freely relative to the tail member. The heel plate 40 includes two plates 42, 44 sandwiched around the tail member 38. The plates 42, 44 are formed from impact resistant plastic or other suitable materials. Rib members 46 are formed on the upper surface of plate 44 to provide a gripping surface.

[Para 29] Fore foot support 22 is fastened onto platform 30, as shown in Figure 4 by rivets, snaps or other fastening devices. The fore foot support 22 is formed from molded rubber, plastic or other material that will hold shape while fitting a range sizes of boots or shoes. The fore foot support 22 includes curved support members 50, 52 that will engage the front upper surfaces of the boots or shoes of the user. Rear foot support 24 fastens to heel plate 40 by rivets or other fastening devices. The rear foot support 24 includes side members 54, 56 and heel support 58 that will engage the upper heel and rear sides of the boot or shoe of the user. A rear opening 60 allow the lower heel to extend out to accommodate different styles and sizes of boots and shoes. The rear foot support 24 is formed from molded rubber, plastic or other suitable materials.

[Para 30] Straps 62, 64 are secured to the upper surface of the support members 50, 52, respectively on the fore foot support 22. The straps 62, 64, as shown in Figure 2, cross over and fasten to buckles 66, 68 secured to the side members 54, 56 on the rear foot support 24. In this preferred embodiment, the straps include engaging ribs 70 that allow teeth in the buckles 66, 68 to engage once the straps are pulled taut. This provides a quick engagement, disengagement buckle system.

[Para 31] In use, the user simply inserts their boot or shoe into the fore foot support 22 and rear foot support 24. The straps 62, 64 extend through the buckles 66, 68 to secure the boot into place. The slidable heel plate 40

slides along the elongated tail member 38 to accommodate different sizes of boots or shoes. This eliminates the need for having to adjust the binding for each size of boot or shoe, as well providing a simple fastening mechanism that secures both the front and rear boot portions in a single fastening mechanism.

[Para 32] Alternative Embodiment

[Para 33] Another preferred embodiment of the present invention is the use of a clear decking material that provides the image of the bindings and boots of the user to be free-floating on the snow surface. In the preferred embodiment, the decking material is a double polished clear polyvinyl chloride. The material is a mixture formula that encapsulates all components in the film. The material is ultra violet stabilized so not to weaken or discolor during use. The material of this preferred embodiment operates in temperatures up to one hundred fifty degrees Fahrenheit without degradation and in temperatures down to minus thirty three degrees Fahrenheit without brittleness. The material passes fire resistance specifications including FR 302.

[Para 34] The clear decking material is translucent against the snow surface. This provides an image of walking or free floating on the snow to provide a unique experience.

[Para 35] The decking material discussed above may be used in combination with the earlier described embodiment of the adjustable binding, or with any other type of snowshoe or device as well.

[Para 36] These and other features of the preferred embodiments of the present invention are not limited to the above descriptive embodiments. These descriptive embodiments are intended for explanatory purposes only and are not meant to limit the scope of the invention.